Correspondence

Qualitative differences in faecal alpha-1-antitrypsin in patients with Crohn's disease

Sir.—The use of faecal alpha-1-antitrypsin (A-1-AT) in the assessment of Crohn's disease (CD) activity remains controversial. In a recent study Fischbach et al found no correlation of faecal A-1-AT with ESR, serum albumin, orosomucoid, activity index of Van Hees, or CDAI. Conversely, faecal A-1-AT was well correlated with a clinical score, serum orosomucoid, and C-reactive protein in another work by Meyers et al. We think that biochemical changes of A-1-AT in the intestine, resulting in an apparent decrease of its faecal concentration, when measured by standard radial immunodiffusion, could explain these discrepancies.

We have compared the biochemical characteristics of faecal A-1-AT in 14 CD (five men, nine women, mean age 28 years) and 10 healthy controls (six men, four women, mean age 30 years). The CD location was the ileum in five of 14, the ileum and colon in seven of 14, and the colon in two of 14; the mean duration of disease was 4·8 years (0·2-20). According to CDAI, the disease was active in 11 of 14 patients and inactive in three of 14. Twenty four hour stools were collected for three days and homogenised. After preparation, sodium dodecylsulphate polyacrylamide gel electrophoresis and immunoblot were applied to analysis of faecal A-1-AT.

Two main A-1-AT biochemical forms of respectively 38000 molecular weight and 51000 mol wt were characterised. Faecal extracts from controls contained only the 38000 mol wt A-1-AT component. Both 38000 and 51000 mol wt A-1-AT were found in faeces of patients with CD. Fifty-one thousand mol wt A-1-AT was only recovered in patients with active CD (eight of 11), while 38000 mol wt alpha-1-AT was present in three of 11 patients with active CD and three of three with inactive CD. No relationship was established between the form of faecal A-1-AT and sex or age of the patients as well as duration of CD or its location.

Thus different forms of A-1-AT exist in the faeces of patients with CD. This could account for the controversial performances of faecal A-1-AT as a marker of CD activity: when measured by standard radioimmunodiffusion in some faecal samples, concentration of 38000 mol wt A-1-AT was underestimated by almost 20% as compared with native 54000 mol wt A-1-AT. Further isolation of different A-1-AT in faeces (especially 51000 mol wt form) might lead to determination of their relative immuno-reactivity. Reassessment of faecal A-1-AT as activity index in CD could then be initiated.

J F COLOMBEL, C MIZON, M BALDUYCK, AND A CORTOT
Department of Gastroenterology,
Centre Hospitalier Universitaire de Lille,
and Laboratoire de Biochimie,
Faculté de Pharmacie,
59037 Lille Cédex, France

References


Reply

Sir,—Colombel et al comment on two different forms of alpha-1-antitrypsin (A-1-AT) as a possible explanation for controversial results concerning the relation between faecal A-1-AT and disease activity in chronic inflammatory bowel disease. Their results in a relatively small number of patients seem to confirm this statement. Indeed, this might be a reason for those discrepancies besides the selection of patients investigated. Obviously, both forms of A-1-AT (38000 and 51000 mol wt) were recognised by the antiserum used. We can hardly understand, however, the second statement that using standard radioimmunodiffusion the concentration of 38000 mol wt A-1-AT is underestimated. To prove this, the following procedures are necessary: separation and purification of both forms of A-1-AT to homogeneity and measurement of protein content as well as determination of A-1-AT by radioimmunodiffusion in both preparations. If not done this way, the authors' statement rests on a weak foundation. We believe such investigations to be worth while.

W FISCHBACH, F BOEGE, AND W BECKER
Medizinische Poliklinik and
Klinik und Poliklinik fur Nuklearmedizin,
University of Würzburg,
Klinikstr. 8, D-8700 Würzburg, FRG

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J F Colombel, C Mizon, M Balduyck and A Cortot

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